

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JEAN-PIERRE TAHON, TOM CLOOTS,
and ROGER BAUERLE

Appeal 2007-2576
Application 09/689,632
Technology Center 1700

Decided: November 6, 2007

Before EDWARD C. KIMLIN, CHARLES F. WARREN, and
THOMAS A. WALTZ, *Administrative Patent Judges*.

WALTZ, *Administrative Patent Judge*.

DECISION ON APPEAL

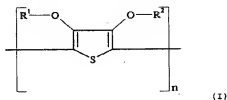
This is a decision on an appeal under 35 U.S.C. § 134 from the Primary Examiner's final rejection of claims 4, 5, 7-12, 14, and 17, which are the only claims pending in this application. We have jurisdiction pursuant to 35 U.S.C. § 6(b).

According to Appellants, the invention is directed to a liquid crystal alignment layer obtained by a method of providing a layer on a substrate, where the layer comprises a polythiophene of formula (I), and mechanically rendering the layer liquid crystal aligning (Br. 3). Independent claims 4 and

12 are illustrative of the invention and a copy of these claims is reproduced below:

4. A liquid crystal alignment layer obtained by a method of making a liquid crystal alignment layer comprising the steps of:

(i) providing a layer on a substrate, said layer comprising a polythiophene according to formula (I):

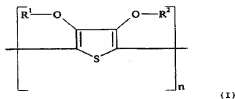


wherein R^1 and R^2 together represent a C_1 - C_4 alkylene group or a cycloalkylene group; and

(ii) mechanically rendering said layer liquid crystal aligning.

12. A liquid crystal device comprising a pair of substrates each having an electrode thereon and a liquid crystal disposed between said substrates, wherein at least one of said substrates is provided with a layer system comprising a liquid crystal alignment layer obtained by a method of making a liquid crystal alignment layer comprising the steps of:

(i) providing a layer on a substrate, said layer comprising a polythiophene according to formula (I):



wherein R^1 and R^2 each independently represent hydrogen or a C_1 - C_4 alkyl group or together represent a C_1 - C_4 alkylene group or a cycloalkylene group; and

(ii) mechanically rendering said layer liquid crystal aligning, wherein an adhesion-improving anchor layer, having barrier properties with regard to oxygen and/or water vapor which may diffuse from said substrate, is provided between at least one of said substrates and said liquid crystal alignment layer.

The Examiner has relied on the following prior art references as evidence of obviousness:

Escher	US 5,118,538	Jun. 02, 1992
Kämpf	US 5,286,414	Feb. 15, 1994
Eguchi	US 5,465,169	Nov. 07, 1995

ISSUES ON APPEAL

Claims 4, 5, 8-10, and 14 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Escher in view of Kämpf (Answer 3).

Claims 7, 11, and 12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Escher in view of Eguchi (Answer 6).

Claim 17 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Escher in view of Kämpf (Answer 8).

With regard to claim 12, we determine that the Examiner has established a prima facie case of obviousness in view of the reference evidence essentially for the reasons as set forth in the Answer and below. We determine that this prima facie case has not been adequately rebutted by Appellants' arguments for reasons set forth below. However, with regard to all other claims on appeal (claims 4, 5, 7-11, 14, and 17), we determine that the Examiner has not established a prima facie case of obviousness essentially for the reasons stated in the Brief, Reply Brief, and further explained below. Therefore, we AFFIRM the rejection of claim 12 and REVERSE the rejections of claims 4, 5, 7-11, 14, and 17 for reasons which

follow. Accordingly, the decision of the Examiner is AFFIRMED-IN-PART.

OPINION

With regard to claims 4, 5, 7-11, 14, and 17, we determine that all of these claims require a polythiophene of formula (I) where R^1 and R^2 together represent a C_1 to C_4 alkylene group or a cycloalkylene group (e.g., *see* claim 4 on appeal). As correctly found by the Examiner, Escher discloses a liquid crystal device where the alignment layer comprises an electrically conductive polythiophene of formula (I) (Answer 3-4). As also correctly found by the Examiner, Escher discloses that the polythiophene of formula (I) may be made from the thiophene monomer of formula (II) (Answer 4). We determine that the substituents R^3 and R^4 of formula (II) taught by Escher are limited to “at least one of the two radicals ... is an alkoxy group” and the other is optionally alkyl or hydrogen (Answer 4; *see* Escher, col. 2, ll. 34-47). Accordingly, it follows that Escher does not disclose or suggest polythiophenes where the substituents together with the 3,4, dioxo groups form an alkylene or cycloalkylene group (e.g., claim 4 on appeal).

We determine that the Examiner has erred in construing the disclosure in Escher referring to the three German applications, where Kämpf is cited as the U.S. equivalent of DE-A 3717668 (Answer 4-5). The Examiner correctly finds that Escher discloses that his formula (II) thiophene monomers have already been described by the three German applications, and that Kämpf teaches a thiophene monomer as formula (II) (Answer 4). However, the Examiner then concludes that it would have been obvious to one of ordinary skill in the art to have used the “analogous thiophene

monomer described by Kämpf as an alternate to the thiophene monomer preferred by Escher” (Answer 5).

We determine that the Examiner has not provided any factual support for this conclusion. As correctly argued by Appellants (Br. 12-14, and 19; Reply Br. 3), we determine that Escher merely teaches that the thiophene monomers of his formula (II) have already been described in the German applications (col. 2, ll. 47-48; i.e., *see* Kämpf). We fail to find that the thiophene monomers of Kämpf *not* described by Escher have been disclosed or suggested as “analogous” or an “alternative” to the Escher thiophene monomers. Although Kämpf discloses the polythiophenes as electrically conductive polymers (col. 2, ll. 25-28), we determine that Kämpf teaches the use of these polymers as an antistatic coating for video screens and the like (col. 8, ll. 39-57, and Example 1). Therefore, we fail to find any identified reason for substituting the “analogous” thiophene monomers of Kämpf for the thiophene monomers described by Escher. *See KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1739 (2007).

With regard to the rejection of claim 12, we find that this claim includes substituents on the polythiophene that are the same as those described by Escher (hydrogen and alkyl; *compare* claim 12 on appeal with formula (I) disclosed by Escher). Therefore, claim 12 is not limited to the R substituents being alkylene or cycloalkylene.¹ We determine that claim 12 does include an “adhesion-improving anchor layer, having barrier properties” (claim 12, part (ii)). However, the Examiner finds that Eguchi

¹ We note that no claim defines any values for “n” and this subscript is not defined anywhere in the Specification. Appellants’ attorney at oral hearing stated that “n” is implicitly defined as “more than one” since a polymer is claimed. Upon return of this application to the jurisdiction of the Examiner, this matter should be clarified by the Examiner and Appellants.

discloses a LCD device similar to that taught by Escher, and teaches the employment of a barrier layer that also functions to improve adhesion (Answer 7). Appellants do *not* contest or dispute the Examiner's findings from Eguchi or its combination with Escher, but merely repeat their arguments concerning Escher and Kämpf (Br. 23-24; Reply Br. in its entirety). Accordingly, we adopt the Examiner's factual findings and conclusion of law concerning the rejection of claim 12 on appeal.

For the foregoing reasons, we affirm the rejection of claim 12 under § 103(a) over Escher in view of Eguchi. We also reverse the rejections of claims 4, 5, 7-11, 14, and 17 under § 103(a) over Escher in view of Kämpf, alone or in view of Eguchi.

No time period for taking any action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

PL/LP Initials
sld/lis

BREINER & BREINER L.L.C.
P.O. BOX 320160
ALEXANDRIA, VA 22320-0160